

# The NOAA Testbeds & Proving Grounds: A coordinated effort to transition research to operations, services & applications

Andrea Ray (Chair, TBPGCC, OAR/PSL), J.J. Brost (Vice-Chair, NWS/STI/OPG), Kodi Berry (OAR/NSSL), Michele Cash (NWS/SWPC), Jimmy Correia (NWS/NCEP/WPC & CU-CIRES), Jordan Dale (OAR/WPO), Tracy Fanara (NOS/IOOS), Joe Fillingham (OAR/OSS & CollabraLink Technologies, Inc.), Mitch Goldberg (NESDIS), Satya Kalluri (NESDIS), Matt Mahalik (OAR/WPO), Patrick Marsh (NWS/NCEP/SPC), Rebecca Mazur (NWS/Alaska Region), Louisa Nance (NCAR/RAL & DTC), Jim Nelson (NWS/NCEP/WPC), Gene Petrescu (NWS/Alaska Region), Matt Rosencrans, (NWS/NCEP/CPC), Joshua Scheck (NWS/NCEP/AWC), Peter Stone (NOAA/NOS) Jim Yoe (NOAA/NWS/NCEP & JCSDA), Brian Zachry (NOAA/NWS/NCEP/NHC)

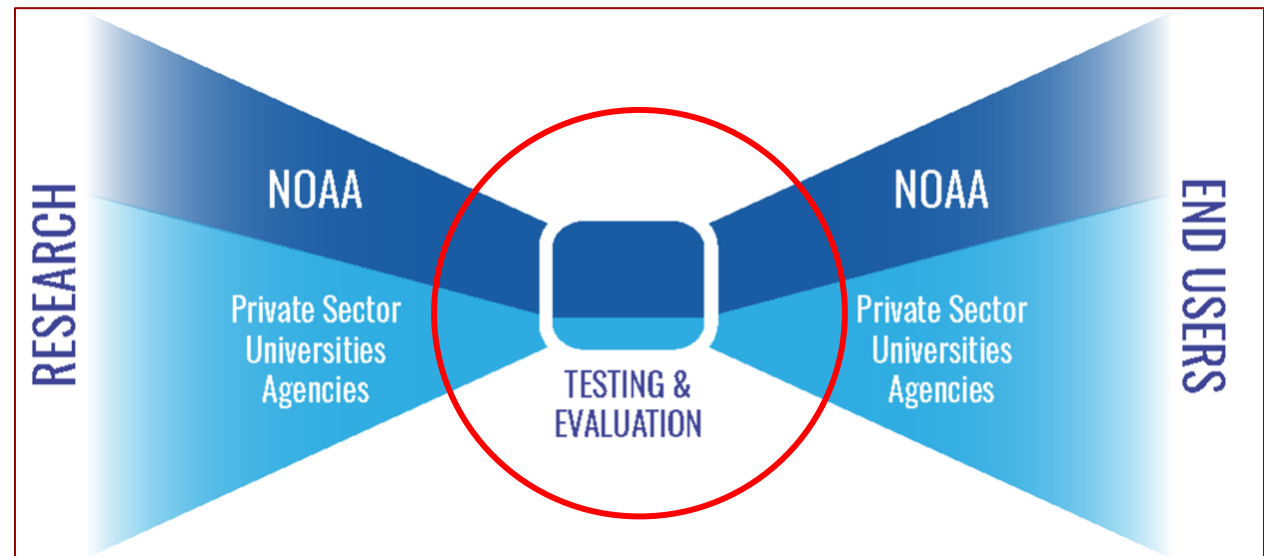
**AMS 2022 Annual Meeting, 12th Conference on Transition of R2O, January 25, 2022**





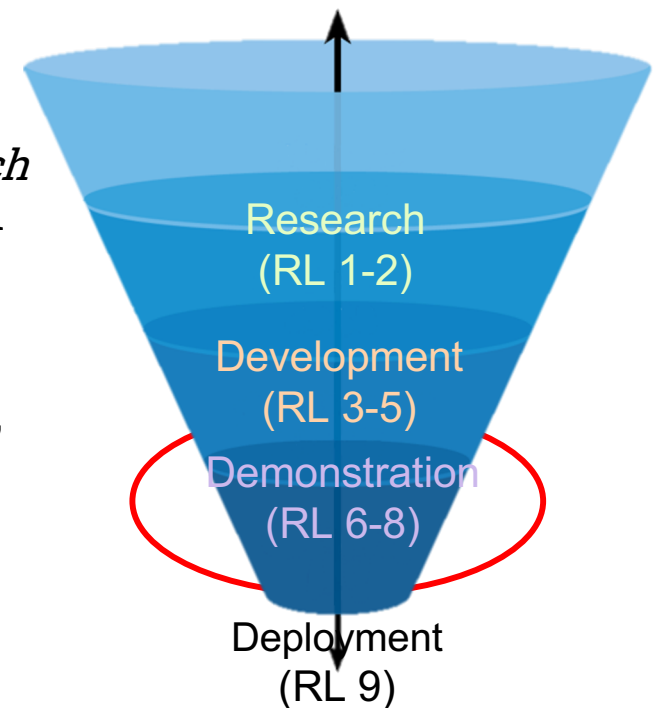
Today: what are they & what they do, intro to the TBPG Coordinating Committee, current concerns & opportunities, how other TBPGs can join

## Testbeds & Proving Grounds sit at a critical node in NOAA R2O

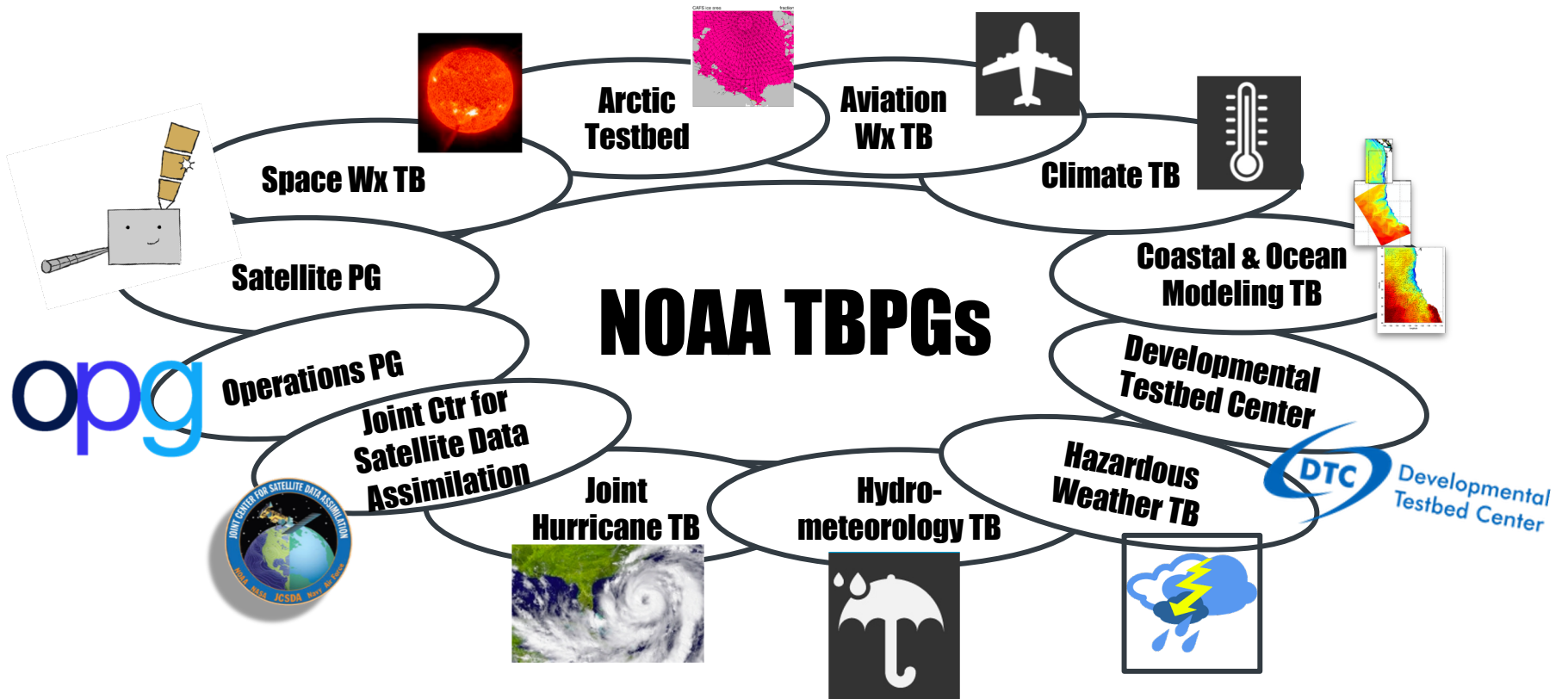


# What are NOAA's Testbeds & Proving Grounds?

- “TBPG” words are used in other contexts, these are:  
Multi-project, ongoing efforts that are partnerships between research & operations
- TB & PG's facilitate the *orderly transition of research capabilities to operational implementation* through development testing in TBs and pre-deployment testing & operational readiness/suitability evaluation in PGs
- A *major facilitator of R2O*, moving through “funnel” – and of O2R
- [Online Portal](https://www.testbeds.noaa.gov/): Charters & links to the 12 NOAA TB & PGs (updates underway)  
<https://www.testbeds.noaa.gov/>



# Who are the TBPGs?







## How do they do this?



Most conduct experiments for testing and evaluating, e.g.



- HMT Winter Weather and Flash Flood & Intense Rainfall Expts
- HWT Experimental Forecast & Experimental Warning Programs



OPG: conducts pre-deployment readiness evaluations of science & technology innovations in a realistic operational environment



SPG and JCSDA  
DTC



Hands-on, even while virtual: WFO & forecasters often involved; and forecast-users like emergency managers; Many have training component



*Many of these require coordination with and among TBPGs So....*





## NOAA TBPG Coordinating Committee

- A venue for coordination, collaboration, synergies
  - individual TB/PG learn from each other
  - identify opportunities for collaboration,
- Network for addressing common issues and opportunities
- Annual meeting and monthly meetings
- Subcommittee of the NOAA Line Office Transition Manager Committee (LOTMC)
- [Online Portal](https://www.testbeds.noaa.gov/) (updates underway) includes Charters and links to the TB & PGs <https://www.testbeds.noaa.gov/>



# 2021 Virtual Annual Meeting: Designed to explore new & ongoing issues

## Speakers and Panel discussions across 7 topic areas

- **Clarify and identify next steps on issues from prior meetings:**
  - Engaging with UFS
  - Transitions and metrics including things that don't transition
  - Testbed Funding Opportunities, Successes and Challenges
- **Identify pathways for coordination & collaboration among TB & PGs** to ensure continued TBPG success -- focus on three TB & PGs, involves all
- **Emerging Topics**
  - NOAA S&T Focus Areas: AI, Cloud, and a Shared Vision for Applications & Transitions
  - Social-Behavioral-Economic Sciences and User Engagement
  - Strategies, Challenges, & Successes in the Virtual Environment
- **Remarks** by LOTMC Chair Gary Matlock & member Peter Stone, Steve Smith, Kim Runk





## Strategies, Challenges & Successes in the Virtual Environment

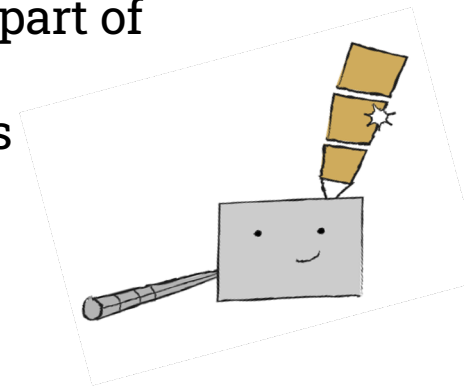
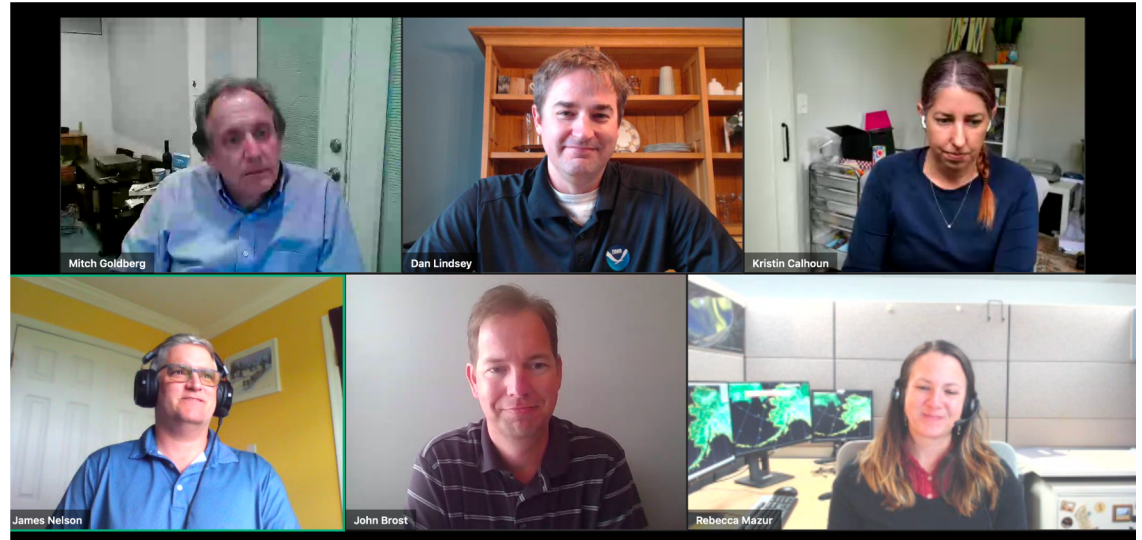
- *Many TBs already had virtual aspects before the pandemic, so had a head start.*
- Pro: The (purely) virtual environment can be more democratic/egalitarian than the “hybrid”
- Cons: Building relationships is slower, and practically no opportunities for short, informal interactions - drop-bys, etc. - so missed opportunities for exchange. Zoom burn-out is a reality!
- *Inherently face-to-face interactions have been seriously hampered, including experiments code-sprints, etc.; ditto sharing equipment & facilities*





## Coordination & collaboration with the Satellite PG

- SPG looking to better work with & support the other TB/PGs & enhance use of satellite obs
- Liaison positions with HWT, JHT, OPG - funded by SPG, part of dedicated budget from GOES and POES
- Concept of risk reduction as benefit of satellite programs





# Testbed Funding Opportunities, Successes & Challenges



- Funding sources & proportions vary across TBPGs
- WPO competitions awards projects evaluated in TBs, and for those projects, funds “infrastructure” people to do things, includes Joint Technology Transfer initiative (JTTI)
  - USWRP budget hasn’t grown (HMT, HWT, JHT)
- Stability of funding. Many efforts rely on supplemental appropriations; WPO JTTI and USWRP is tied to those projects, but more is tested than just WPO projects
- S&T areas offer opportunities, but likely come with need for resources, training
- UFS -- need to bridge between old and new



Most under-resourced given demands for transitions and R&D that needs to be tested/vetted





## Opportunities: Areas ripe for TBPG's in next 1-5 years



- Big topic: How will TBPGs participate in Data, Cloud, AI
  - Changes in how they receive data, new data?
  - TB experiments can provide a place to expose/train on AI
  - Recognize opportunities but also potential additional demands -- Concern about how will these be resourced? These are not funding programs
- Ditto UFS - opportunities, but how to bridge between old & new, & fund TB/PG expanded role
- S2S: CPC collaboration with HWT & HMT on products where CPC timeliness intersect with HWT & HMT phenomena.
- Arctic: Hazard services testing w/ Arctic Testbed; Coastal operational oceanography in the Arctic & how it affects climate (collaboration between COMT, Arctic & Climate TBs)
- Identify some risk/prediction areas that several TB's could collaborate on; may be difficult in how budgets constructed and priorities set, e.g. specific Hazard Services

*Just the tip of the iceberg!*





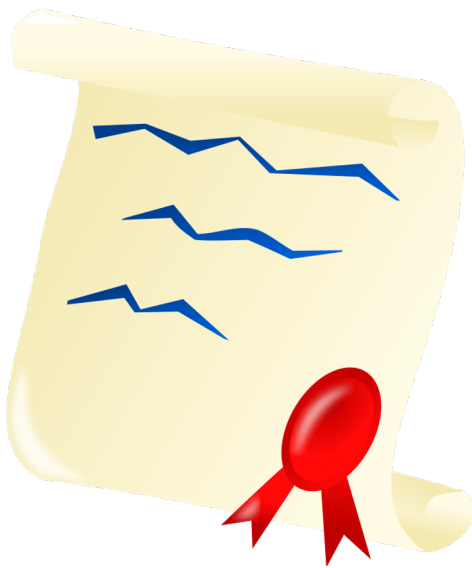


# Joining TBPGCC

Multi-project, ongoing efforts that are partnerships between research & operations

According to the TBPGCC charter:

- A charter for the new Testbed and a formal oversight structure as described in the TBPGCC [guidelines document](#).
- Nomination by the appropriate Line Office focal point
- A 75% vote of agreement of all TBPGCC members
- Two that we're aware of: Fire Wx and FACETS

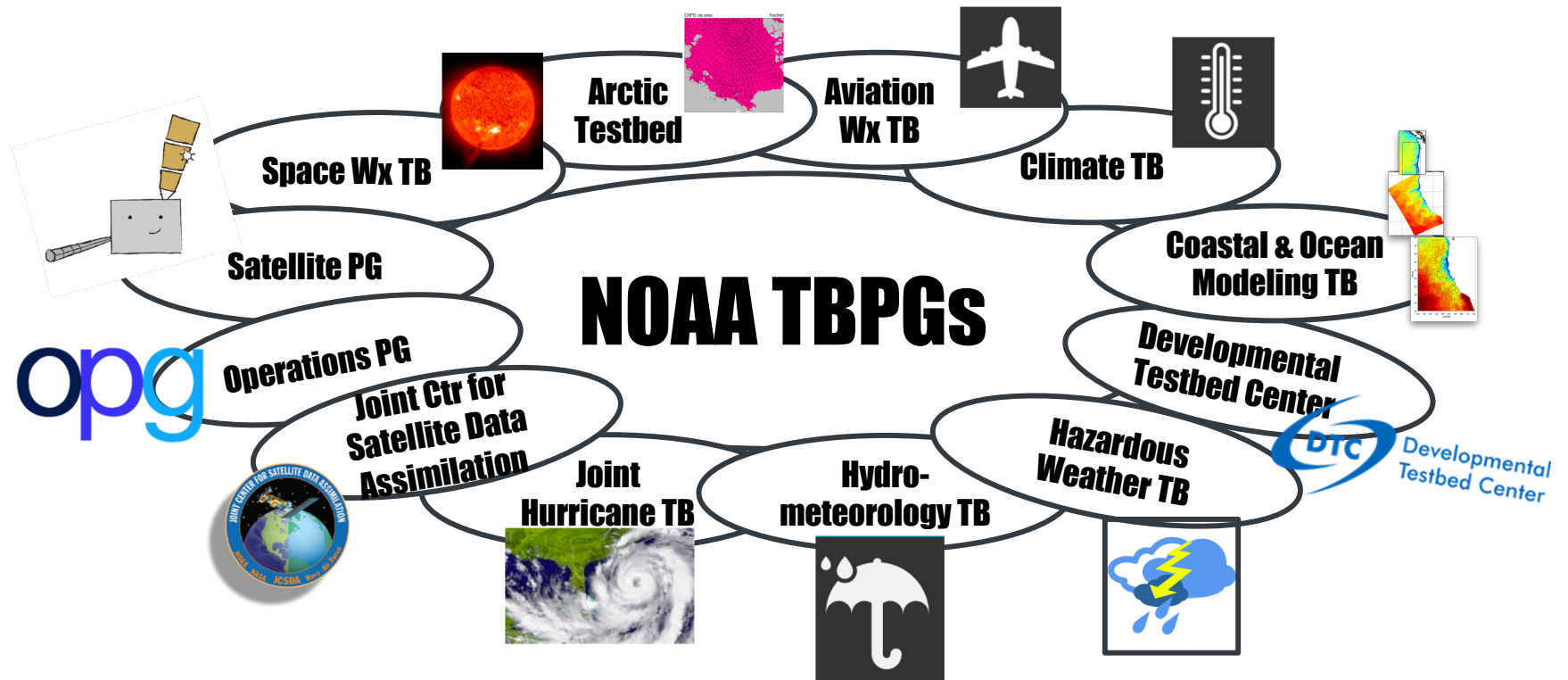






# Thank you!

<https://www.testbeds.noaa.gov/>





# Overview

- *What are NOAA's Testbeds and Proving Grounds?*
  - *Introduction to the network*
- *What's the Coordinating Committee?*
- *NOAA's network*
- *Current concerns and opportunities*
- *How TBs can join*

